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REMARKS

The issues currently in the application are as follows:

- Claims 1-5, 7-9, 11-13, 18-19, 29, and 31 were rejected under 35 U.S.C. § 102(b);
- Claims 6, 10, 14-17, 20-23, 27, 30, and 36 were rejected under 35 U.S.C. § 103(a); and
- Claims 24-26, 28, and 32-35 were objected to as being dependent upon a rejected base claim.

Applicant traverses all the outstanding objections and rejections and requests reconsideration and withdrawal thereof in light of the amendments and remarks contained herein.

Amendments to the Claims

Claim 1 has been amended to incorporate the "popple dome" recited in claim 9. The popple dome is further supported by paragraph [0022] of the originally-filed specification. Thus, no new matter has been added.

Claim 9 has been amended in light of the amendment to claim 1.

Claim 10 has been amended to correct a typographical error.

Claim 11 has been amended to positively recite two central switches with associated satellite force sensing pads and actuators. This amendment is supported by FIG. 1 and corresponding text in paragraph [0013] of the originally-filed specification, which shows twelve force sensing keys 130 having a construction such as that described with reference to FIGs. 2-5, and FIG. 7 and corresponding text in paragraph [0058] of the originally-filed specification, which shows fifteen force sensing keys 730 having a construction such as that described with reference to FIGs. 2-5. Thus, no new matter has been added.

Claims 12-13, 16-19, 21-23, and 27-28 have been amended to harmonize terminology with amended claim 11.

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Claim 29 has been amended to recite a popple dome. The popple dome is supported by paragraph [0022] of the originally-filed specification. Thus, no new matter has been added.

Claim 31 has been amended to recite a popple dome. The popple dome is supported by paragraph [0022] of the originally-filed specification. Thus, no new matter has been added.

Claim 36 has been amended to recite a popple dome. The popple dome is supported by paragraph [0022] of the originally-filed specification. Thus, no new matter has been added.

No amendment made was related to the statutory requirements of patentability unless expressly stated herein. No amendment was made for the purpose of narrowing the scope of any claim, unless Applicant had argued herein that such amendment was made to distinguish over a particular reference or combination of references.

35 U.S.C. § 102(b) - Engle

Claims 1-5, 7-9, 11-13, 18-19, 29, and 31 were rejected under 35 U.S.C. § 102(b) as being anticipated by Engle (U.S. Patent No. 5,541,622). Engle proposes a joystick with an integrated switch and force-sensitive resistor elements. The integrated switch (tip switch) of Engle relieves the user from having to explicitly actuate a separate switch to enable pointing. Moreover, the tip switch is small and has little or no travel, so a user may not even be aware of its presence. See Engle column 4 lines 11-23. Engle provides four embodiments for an integrated switch that would not be readily noticeable by a user of the joystick. One embodiment of Engle has a rubber dome 166 as part of the integrated switching mechanism, which enables the user to close the switch using a small force and without necessarily being aware of the switch. See Engle column 7 lines 28-43. Another embodiment of Engle shows a capacitive sensor as a switch in FIG. 2. The capacitive sensor has a rubber cap 194 and electrode 196 and

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requires no applied force or travel of the cap 194. See Engle column 8 lines 17-46. A third embodiment of Engle uses a resistive sensor with a central electrode 218 separated from an outer electrode 214 by an insulating gap 216 as shown in FIG. 3A and 3B and described in column 9 lines 1-23 as requiring no movement to close the switch. A fourth embodiment of Engle uses a rubber air-gap switch 228, 226, 230 shown in FIG. 4 and described in column 9 lines 23-50 that also allows the switch to close without the user being aware of it.

Claim 1 has been amended to recite that the switch includes a popple dome. As described in paragraph [0022] of the originally-filed specification, a popple dome helps protect against inadvertent key presses and also provides tactile feedback when a key press has activated the central switch. As paragraph [0025] of the originally-filed specification describes, tactile feedback to the user is promoted. This is opposite to Engle's joystick where tactile feedback to the user is inhibited. See also paragraphs [0030] and [0042] of the originally-filed specification, which describe popple domes with large dome travel distances during actuation.

Because Engle does not show or suggest a popple dome, and in fact teaches away from the use of a popple dome, claim 1 as amended is not anticipated by Engle. Claims 2-5 and 7-9 depend directly or indirectly upon independent claim 1 and, therefore, are also not anticipated by Engle.

Specifically regarding claims 4-5, Engle does not propose primary and secondary functions. Engle's joystick is pre-loaded with a small initial force so that the force-sensitive resistor elements operate in a more predictable (e.g., linear) region of operation. See Engle column 6 line 15 to column 7 line 2. Engle does not compare an applied force to a pre-load force; any applied force in Engle is in addition to the pre-load force. Thus, Engle does not anticipate comparing force values to a stored threshold value as recited in claims 4-5.

Claim 11 has been amended to recite two central switches with associated satellite force sensing pads and actuators. Engle only proposes a single integrated

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switch for a single joystick. Although Engle shows multiple embodiments of an integrated switch, Engle does not show or suggest more than one joystick (either as part of a keyboard or as a stand-alone joystick). See Engle column 5 lines 38-45. The other keys 242 shown in FIG. 5A of Engle are conventional and, although they may include switches, do not show or suggest the structure recited in amended claim 11. Because Engle does not show or suggest a keypad with "a first central switch and a second central switch" and associated structure as recited in claim 11, claim 11 is not anticipated by Engle. Claims 12-13 and 18-19 depend directly or indirectly upon independent claim 11 and, therefore, are also not anticipated by Engle.

Specifically regarding claim 13, Engle does not show or suggest a satellite force sensing pad associated with more than one switch.

Claim 29 has been amended to recite a switch having a popple dome. As stated before with respect to claim 1, Engle teaches away from including a popple dome in its joystick with integrated switch. Thus, amended claim 29 is not anticipated by Engle.

Claim 31 has been amended to recite a switch having a popple dome. As stated before with respect to claim 1, Engle teaches away from including a popple dome in its joystick with integrated switch. Thus, amended claim 31 is also not anticipated by Engle.

Reconsideration and withdrawal of the rejection of claims 1-5, 7-9, 11-13, 18-19, 29, and 31 under 35 U.S.C. § 102(b) as being anticipated by Engle is respectfully requested.

35 U.S.C. § 103(a) - Engle and Krishnan

Claims 6, 10, 14-17, 20-23, 27, 30, and 36 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Engle (U.S. Patent No. 5,541,622) in view of Krishnan (U.S. Patent No. 6,377,685). Krishnan shows a key arrangement, which is in contrast to the joystick of Engle. Although Applicant has not previously distinguished between the

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joystick of Engle and the keys of Krishnan (or the keys of the application), Applicant now points out that it would not be obvious to combine the joystick of Engle into a particular cluster key of Krishnan. Engle shows a joystick as part of a keyboard, but Engle's joystick does not replace any key(s) of a conventional keyboard. Thus, a combination of Engle and Krishnan would result in a Krishnan keyboard with an added joystick rather than Krishnan cluster keys having the construction of Engle's joystick as the Examiner has reconstructed in hindsight.

Claims 6 and 10 depend indirectly upon claim 1, which is not obvious in view of Engle and Krishnan for the reasons stated above. Thus, claim 6 is not unpatentable in view of Engle and Krishnan. Additionally, claim 6 depends from claims 1 and 5, which are not shown or suggested by Engle or Krishnan. Claim 10 depends from claims 1 and 7, which are not shown or suggested by any reasonable combination of Engle or Krishnan.

Claims 14-17, 20-23, and 27 depend indirectly upon claim 11, which is also not obvious in view of Engle and Krishnan. Claims 14-15 recites different character inputs, which are not shown or suggested by any reasonable combination of Engle or Krishnan. Claims 21-23 recite comparing forces sensed to a stored threshold value, which is not shown or suggested in Engle or Krishnan. Regarding claim 27, Krishnan does not disclose a secondary key press based upon the greatest force detected on a region of the key cluster. Instead, Krishnan eliminates the pressing of multiple secondary keys 104 (or a primary key 101 and one or more secondary keys 104) using the mechanical arrangement shown in FIGs. 4-5 or by producing an error signal to the user when multiple keys in a single cluster key are depressed. See Krishnan column 15 lines 9-29.

Claim 30 depends from independent claim 29, which is not obvious in view of Engle and Krishnan for the reasons stated above. Thus, claim 30 is also not obvious in view of Engle and Krishnan.

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Claim 36 is not obvious in view of Engle and Krishnan for the reasons stated above.

Reconsideration and withdrawal of the rejection of claims 6, 10, 14-17, 20-23, 27, 30, and 36 under 35 U.S.C. § 103(a) as being obvious in view of Engle and Krishnan is respectfully requested.

Allowable Subject Matter

Applicant acknowledges that the Examiner has indicated that claims 24-26, 28, and 32-35 would be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims.

SUMMARY


The application is in condition for allowance and a favorable response at an early date is earnestly solicited. Should the Examiner have any questions, comments, or suggestions, the Examiner is invited to contact Applicant's representative at the telephone number indicated below.

Please charge any fees associated herewith, including extension of time fees, to Deposit Account 502117.

Respectfully submitted,

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